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### (54) Retail security system

(57) A security system for use in a retail environment, employs a number of tags attached to retail goods. The tags are deactivated when the goods are paid for. At least one electronic article surveillance (EAS) detector, positioned for example at a store exit,

detects passage of active tags. When an active tag is detected, a signal is sent to a control computer, which triggers an image recording device, such as a CCTV camera attached to a video recorder. The recording device thus records a picture of any person who may be removing goods from the store without paying.

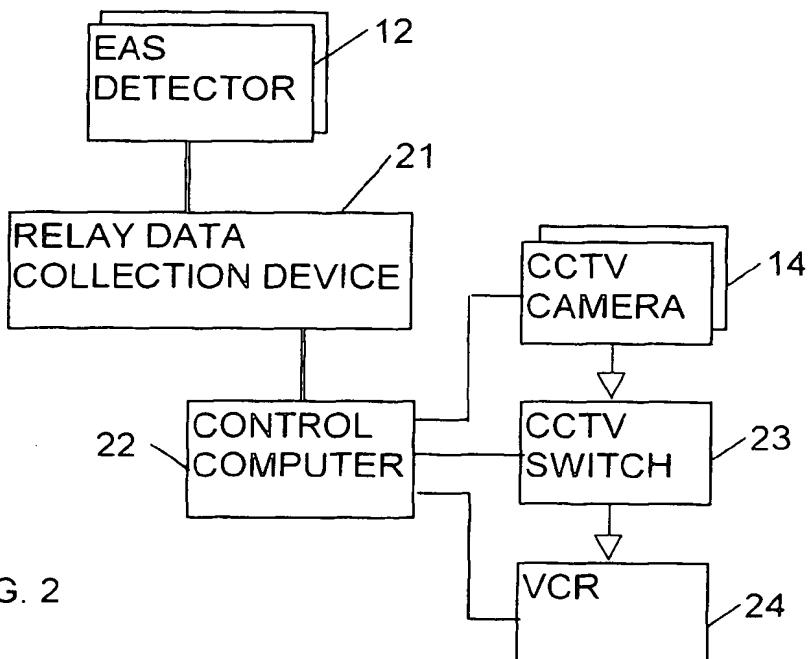


FIG. 2

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## Description

### Background to the Invention

**[0001]** This invention relates to systems for providing security in a retail environment. More specifically, the invention is concerned with Electronic Article Surveillance (EAS) systems.

**[0002]** In an EAS system, goods in a retail store are labelled with electronic tags. When the goods have been properly paid for at the checkout, the tags are either removed or deactivated. If an active tag is passed through an EAS detector at the exit of the store, it will trigger the detector, setting off an alarm to alert the store staff to a possible theft.

**[0003]** For example, U.S. Patent No. 4728938 describes a radio-frequency tag which can be deactivated by applying high RF power to it.

**[0004]** It is also well known in a retail environment to use CCTV (closed-circuit television) cameras and video recording to monitor areas of the store, such as checkouts and shelves.

**[0005]** The object of the present invention is to provide an improved security system for such an environment.

### Summary of the Invention

**[0006]** According to the invention there is provided a security system for use in a retail environment, the system comprising:

- (a) a number of tags attached to retail goods,
- (b) at least one EAS detector for detecting the passage of active tags,
- (c) an image recording device (e.g. a CCTV camera connected to a video recorder), and
- (d) a control device, triggered by a signal from the EAS detector, for causing the image recording device to capture a picture of the locality of the EAS detector upon detection of an active tag by the EAS detector.

### Brief Description of the Drawings

**[0007]** Figure 1 is a schematic diagram of a retail store employing a security system in accordance with the present invention.

**[0008]** Figure 2 is a block diagram of the electronic components of the system.

### Description of an Embodiment of the Invention

**[0009]** One security system in accordance with the invention will now be described by way of example with reference to the accompanying drawings.

**[0010]** Referring to Figure 1, this shows a retail store, having shelves 10 on which goods are displayed, a number of checkouts 11 at which customers can pay for

their selected goods, a number of EAS detectors 12 positioned near the exit 13 of the store, and at least one remote-controlled CCTV camera 14.

**[0011]** The goods have electronic tags attached to them. For example, these may be RF tags as described in the above-mentioned U.S. Patent No. 4728938. At the checkout, when a customer pays for the selected goods, the checkout generates a pulse of high RF power, which causes a fusible link in each tag to be broken, thereby deactivating the tag.

**[0012]** Referring to Figure 2, the EAS detectors 12 are connected by way of a relay data collection device 21 to a control computer 22. The computer 22 controls a CCTV switch 23, which interconnects the CCTV cameras 14 as to a VCR (video cassette recorder) 24. The control computer also sends control signals to the CCTV cameras 14, so as to control each camera independently for tilt, pan and zoom.

**[0013]** Whenever the EAS detector detects the presence of an active tag, it sends an alert message to the control computer, by way of the data collection device 21. Alert messages may also be generated from other sources. For example a checkout may generate an alert message when a potentially suspicious event, such as "no sale" or a refund occurs, as described in our co-pending European Patent application no. 95306622.8.

**[0014]** When the control computer receives an alert message, it first checks the priority level of the event indicated by the message, and compares it with the priorities of other events currently being handled. If the priority level is high enough, the control computer selects one of the CCTV cameras and points it at the origin of the alert. In particular, if the alert message came from an EAS detector, the control computer points one of the CCTV cameras at that detector, so as to capture a picture of the person currently passing that detector. At the same time, the control computer sends a signal to the CCTV switch, causing it to connect the selected CCTV camera to the VCR, and sends the alert message to the VCR. The VCR then records the captured image, with the alert message superimposed on it.

**[0015]** In addition, the control computer may also trigger an audible alarm, or a visual indication, to alert store staff.

**[0016]** When recording is finished, the VCR and the CCTV switch are returned to their previous states.

### Some possible modifications

**[0017]** It will be appreciated that many modifications may be made to the system described above without departing from the scope of the present invention. For example, instead of using tags which can be deactivated, the tags may simply be removed from the goods by store staff at the checkout. Other types of tag may also be used. Also, instead of using steerable cameras, fixed cameras may be used, each pointing at a particular site of interest, such as one of the EAS detectors.

**Claims**

1. A security system for use in a retail environment,  
the system comprising:

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- (a) a plurality of tags attached to retail goods;
- (b) at least one electronic article surveillance (EAS) detector (12) for detecting passage of active tags; and
- (c) an image recording device (14,23,24);

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characterised by

- (d) a control device (22), triggered by a signal from said EAS detector, for causing said image recording device to capture a picture of the locality of said EAS detector upon detection of an active tag by said EAS detector.

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2. A security system according to Claim 1 wherein said control device is a control computer (22).

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3. A security system according to Claim 2 wherein said control computer is connected to said EAS detector by way of a relay data collection device (21).

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4. A security system according to any preceding claim wherein said image recording device comprises a closed circuit television (CCTV) camera (14) linked to a video recorder (24).

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5. A security system according to Claim 4 wherein said CCTV camera (14) is remotely controlled by said control device (22).

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6. A security system according to any preceding claim wherein the system includes means (11) for deactivating the tags when the goods to which they are attached have been paid for.

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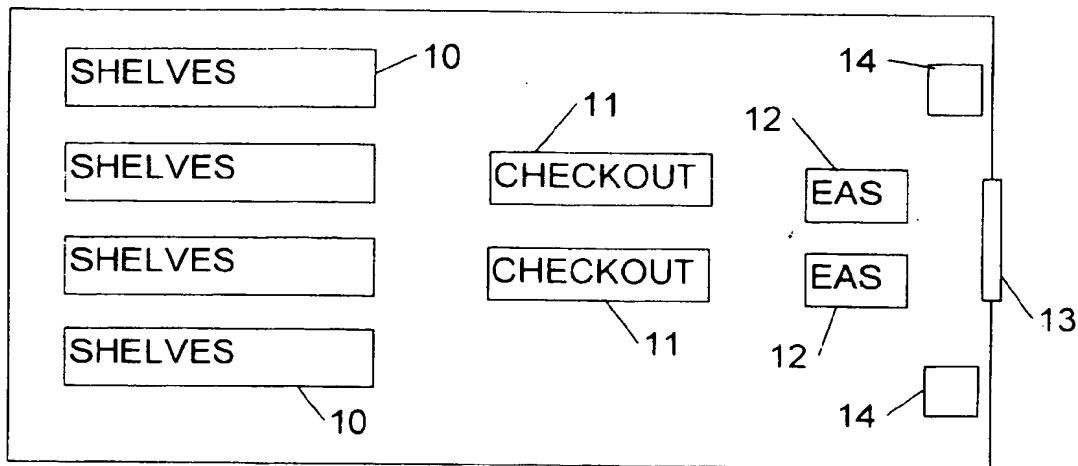


FIG. 1

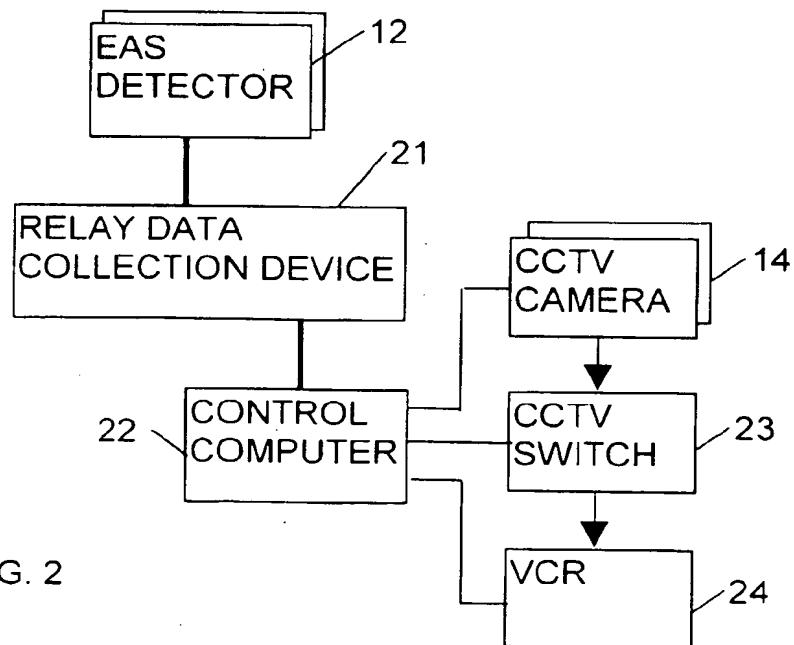


FIG. 2

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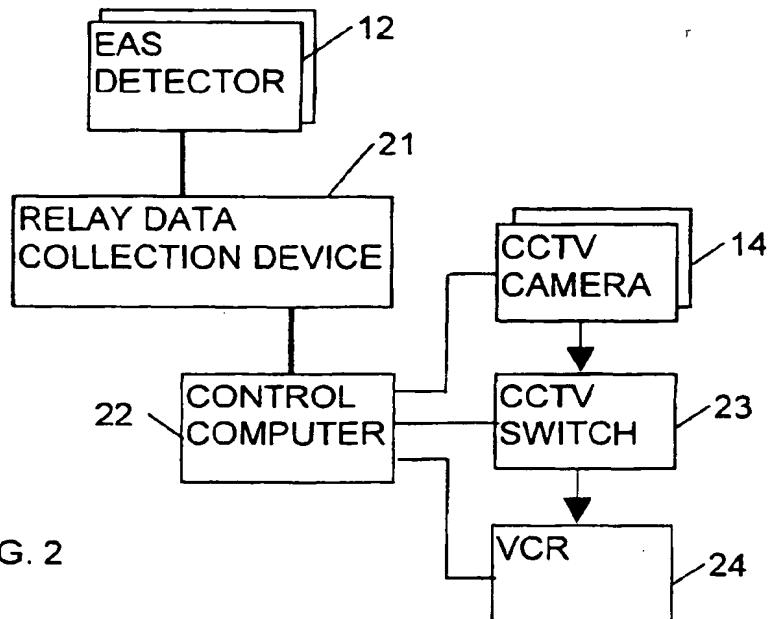


FIG. 2



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## EUROPEAN SEARCH REPORT

Application Number  
EP 98 30 8419

DOCUMENTS CONSIDERED TO BE RELEVANT			
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Y	GB 2 215 568 A (PHOTO SCAN LIMITED) 20 September 1989 (1989-09-20) * the whole document *	4,5	
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P,X	US 5 745 036 A (CLARE THOMAS J) 28 April 1998 (1998-04-28) * the whole document *	1-3,6	
A	WO 97 00503 A (SENSORMATIC ELECTRONICS CORP) 3 January 1997 (1997-01-03) * page 9, line 25 - page 10, line 11 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G08B
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search		Examiner
THE HAGUE	19 October 1999		Kelperis, K
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 30 8419

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on the European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-10-1999

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For more details about this annex see Official Journal of the European Patent Office, No. 12/82



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